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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,459

05/02/2005

Curtis C. Harris

63139(47992)

3076

46037

7590

12/19/2008

EDWARDS ANGELL PALMER & DODGE LLP

PO BOX 55874

BOSTON, MA 02205

EXAMINER

QIAN, CELINE X

ART UNIT

PAPER NUMBER

1636

MAIL DATE

DELIVERY MODE

12/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,459	Applicant(s) HARRIS ET AL.	
	Examiner CELINE X. QIAN	Art Unit 1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 1-19,30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 20-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>0505</u> . | 6) <input checked="" type="checkbox"/> Other: <u>PTO-90</u> . |

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10533459	5/2/2005	HARRIS ET AL.	63139(47992)

EDWARDS ANGELL PALMER & DODGE LLP
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EXAMINER

CELINE X. QIAN

ART UNIT	PAPER
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1636	20081217
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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

In response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter.

Please submit the name of the cDNA microarray which comprises 9,984 human genes provided by Advanced technology as disclosed on page 22 last paragraph. Please also provide information on when this microarray is available to public.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

/George C. Elliott, Ph.D./
Director, Technology Center 1600

Celine X Qian
Primary Examiner
Art Unit: 1636

DETAILED ACTION

Claims 1-31 are pending in the application.

Election/Restrictions

Applicant's election with traverse of Group II (claims 20-24 and 28) within the originally elected Group I in the reply filed on 1/22/08 and 9/4/08 is acknowledged. The traversal is on the ground(s) that all claims can be considered without undue burden. Applicants argue that the claims were all considered in the international search report, and consideration of all claims will save significant time and expense.

The argument has been fully considered and deemed partially persuasive. Upon further consideration, claims 1-31 are divided into following groups:

Group I. 20-29, drawn to an microarray that comprises genes, or polynucleotide fragments or RNA transcripts thereof for distinguishing a neuroendocrine tumor cell, said microarray comprising a solid support having greater than 10 genes, or polynucleotide fragments or RNA transcripts thereof, distinguishably arrayed in spaced apart regions, wherein said microarray comprises a sufficient number of genes, or polynucleotide fragments or RNA transcripts thereof, that are differentially expressed in SCLC, LCNEC, TC or AC, relative to a normal cell or a cell belonging to a different neuroendocrine tumor cell type.

Group II. 1-5, 9-16, 30 and 31, drawn to a method for determining whether a candidate cell is a small cell lung cancer (SCLC) neuroendocrine tumor cell, comprising determining the profile of expression of one or one combination of genes as recited.

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Group III. 1, 2, 4-6, 9-11, 17, 18 and 30, drawn to a method for determining whether a candidate cell is a large cell neuroendocrine carcinoma (LCNEC) neuroendocrine tumor cell, comprising determining the profile of expression of one or one combination of genes as recited.

Group IV.1, 2, 4, 5, 7, 9-11, 19 and 30, drawn to a method for determining whether a candidate cell is a typical carcinoid (TC) neuroendocrine tumor cell, comprising determining the profile of expression of one or one combination of genes as recited.

Group V.1, 2, 4, 5, 8-11 and 30, drawn to a method for determining whether a candidate cell is an atypical carcinoid (AC) neuroendocrine tumor cell, comprising determining the profile of expression of one or one combination of genes as recited.

PCT Rule 13.2 requires that unity of invention exists only when the shared same or corresponding technical feature is a contribution over prior art. The invention listed as I-V do not relate to a single general inventive concept because they lack the same or corresponding special technical feature. The special technical feature of Group I is a microarray chip that comprises gene or combination of genes which are differentially expressed in neuroendocrine tumor cells. The microchip with 9,984 human genes from advanced technology used in the instant specification already exist prior t the filing of the application. This microarray chip comprises all the genes discovered that are differentially regulated in neuroendocrine cells. As such, the special technical feature of Group I cannot link the invention as a whole to form a single general contribution over prior art.

The inventions listed as Groups II-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group II

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invention is the gene or combination of genes which can distinguish a *small cell lung cancer (SCLC)* neuroendocrine tumor cell from other neuroendocrine tumor cells; this special technical feature is not present in the other Groups. The special technical feature of the Group III invention is the gene or combination of genes which can distinguish a *large cell neuroendocrine carcinoma (LCNEC)* neuroendocrine tumor cell from other neuroendocrine tumor cells; this special technical feature is not present in the other Groups. The special technical feature of the Group IV invention is the gene or combination of genes which can distinguish a *typical carcinoid (TC)* neuroendocrine tumor cell from other neuroendocrine tumor cells; this special technical feature is not present in the other Groups. The special technical feature of the Group V invention is the gene or combination of genes which can distinguish an *atypical carcinoid (TC)* neuroendocrine tumor cell from other neuroendocrine tumor cells; this special technical feature is not present in the other Groups.

In response to the argument, Applicants are reminded that the requirement is proper under the guidance set forth in MPEP. According to the guideline provided in MPEP 37 CFR 1.499 regarding unity of invention during the national stage, it set forth "If the examiner finds that a national stage application lacks unity of invention under § 37 CFR 1.475, the examiner may in an Office action require the applicant in the response to that action to elect the invention to which the claims shall be restricted. Such requirement may be made before any action on the merits but may be made at any time before the final action at the discretion of the examiner. As such, it is proper for the examiner to consider the unity of the invention before a non-final office action.

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As provided in 37 CFR 1.475(a), “a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept (“requirement of unity of invention”). Where a group of inventions is claimed in a national stage application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression ‘special technical features’ shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim. See 37 CFR 1.475(e).”

According to the standard set forth above, claims 1-31 are now divided into 5 groups as set forth above. This restriction requirement is still deemed proper and is therefore made FINAL.

Since Applicants elected the product claims 20-24 and 28 (claims in Group I) for prosecution, claims 25-27 and 19 will be rejoined with 20-24 and 28 for examination on merits. Claims 1-19 and 29-31 are withdrawn from consideration for being directed to non-elected subject matter.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 29 recites the limitation "the method of claim 28" in line 1. There is insufficient antecedent basis for this limitation in the claim because claim 28 is drawn to a product, a microarray, not a method.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Pedersen et al (British Journal of Cancer, 2001. Vol. 85, No.8, pages 1211-1218).

The GeneChip Hu6800 set, comprising 6800 genes, developed by Affymetrix, comprises genes that are differentially expressed in SCLC cell line GLC3-EGFRvIII (see Table 1, page 1213-1214). Therefore, Pedersen et al. disclose the claimed invention.

Claims 20-24 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Anbazhagan et al (Cancer Research, 1999. Vol. 59, pages 5119-5122).

Anbazhagan et al. disclose a gene chip array containing 18,210 cDNA clones obtained from Gene Discovery Array Human I was used to determine differentially expressed genes in SLSC, normal bronchial epithelial cells, pulmonary carcinoids and infiltrating astrocytic brain

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cancers (see page 5119, method section, and Table 1). This cDNA array comprises genes that are differentially expressed in SCLC, TC, AC and normal tissue. Therefore, Anbazhagan disclose the instantly claimed invention.

Claims 20-27 are rejected under 35 U.S.C. 102(a) as being anticipated by Virtanen et al (PNAS, 2002. Vol.99, No.19, pages 12357-12362).

Virtanen et al. disclose a microarray that comprises 6,671 unique genes which was used to determine differential gene expression profile in SCLC, LCNEC, TC, AC and normal tissue (see pages 12360, Figure 3, and page 12358, 1st col., 3rd paragraph, lines 1-2). Therefore, Virtanen et al. disclose the claimed microarray.

Claims 20 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Cherkaoui-Malki et al (Gene Expression, 2001. Vol.9, pages 291-304).

Cherkaoui-Malki et al. disclose a microarray chip obtained from Incyte Genomics, which comprises 6973 genes, and wherein one of the genes is CPE (see page 293, 2nd col., 2nd paragraph, and pages 297, Table 2, no. 5 from bottom). Although this chip is not used to identify genes differentially expressed in neuroendocrine tumor, it meet the limitation of a microarray comprise genes distinguishably arrayed in spaced apart regions and comprises more than 10 genes, wherein at least one of the gene is CPE as recited in claim 28. The implied use of the microarray chip does not impart a structural difference between the claimed microarray and what is disclosed in the Cherkaoui-Malki et al. reference. Therefore, this reference discloses the instantly claimed invention.

No claims are allowed.

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This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CELINE X. QIAN whose telephone number is (571)272-0777. The examiner can normally be reached on 10-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Celine X Qian /
Primary Examiner, Art Unit 1636

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